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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
PRITCHETT, JOSHUA L

ART UNIT	PAPER NUMBER
2872	

DATE MAILED: 10/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/085,570	SHOSHI ET AL.	
	Examiner	Art Unit	
	Joshua L Pritchett	2872	

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 August 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

This action is in response to Amendment A filed August 27, 2003. Claims 1 and 3 have been amended and claims 7-20 have been added as requested by applicant.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4-9, 11-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsufuji (US 6,480,250) in view of Sopko (US 6,436,541).

Regarding claim 1, Matsufuji teaches a film for optical applications comprising a hard coat (2), which comprises a resin cured by ionizing radiation (col. 4 lines 49-51) and has a thickness in a range of 2-20 microns (col. 5 lines 18-19). Matsufuji further teaches a low refractivity layer (4) which comprises a siloxane-based polymer (col. 7 lines 53-55) and has a refractive index in a range of 1.37-1.47 (col. 7 lines 41-42) and a thickness in a range of 60-180 nanometers (col. 7 lines 60-63). Matsufuji further teaches the application of the films on a substrate (1) with the hard coat (2) being adjacent the substrate and the low refractive index layer

(4) being furthest from the substrate (Fig. 1). Matsufuji further teaches the inclusion of a high refractivity layer (3). Matsufuji lacks reference to multiple high refractivity layers and the refractive index of the high refractivity layers. Sopko teaches the use of two adjacent high refractivity layers (49 and 51). Sopko teaches the layer closest to the substrate (49) has a refractive index between 1.7 and 1.95 (col. 10 lines 6-9) and a thickness between 30 and 120 nanometers (Table 4 column 3 (measurements given in Angstroms 1 nm = 10 Angstroms)). Sopko further teaches the other high refractivity layer having a refractive index between 1.6 and 1.7 (col. 10 lines 3-5) and a thickness between 5 and 70 nanometers (Table 4 column 1). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the single high refractivity layer of Matsufuji be multiple high refractivity layers as taught by Sopko for the purpose of reducing the amount of incident light reflected by the film by slowly changing the refractive index through the film. The application of the high refractivity layers using the same technique as the hard coat disclosed in Matsufuji would also have been within the ability of one ordinary skilled in the art and one would have been motivated to do so for the purpose of minimizing production costs by limiting the number of means used for depositing layers on a substrate.

Regarding claim 4, Matsufuji teaches the invention as claimed but lacks reference to the high refractivity layer being made of tin oxide doped with antimony. Sopko teaches the use of tin oxide doped with antimony as one of the high refractivity layers (col. 2 lines 20-25). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have a high refractivity layer of antimony doped tin oxide as taught by Sopko in the Matsufuji invention for the purpose of providing better antistatic properties in the Matsufuji film stack.

Regarding claim 5, Matsufuji teaches the low refractivity layer having antistatic properties (col. 3 lines 16-18). Matsufuji discloses the multilayer film stack having antistatic properties therefore the low refractivity layer would have antistatic properties because it is included in the multilayer stack.

Regarding claim 6, Matsufuji teaches the inclusion of an antifouling layer (5) deposited on the low refractivity layer (Fig. 1). Matsufuji discloses a protective layer that has anti-smudge properties (col. 7 lines 66-67) which is taken to mean the same thing as an antifouling layer.

Regarding claim 7, Matsufuji teaches wherein the siloxane-based polymer in the refractivity layer has hydrophilic groups (col. 8 line 13).

Regarding claim 8, Matsufuji teaches the use of silicon groups and alcohol groups as hydrophilic groups (col. 8 lines 18-34) and the well-known use of alcohols as hydrophilic groups (col. 4 lines 28-32). Matsufuji lacks specific reference to silanol; however one of ordinary skill in the art would recognize based on the teachings of Matsufuji to use silanol as a hydrophilic group because Matsufuji teaches the use of alcohols as hydrophilic groups. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the hydrophilic group of Matsufuji be silanol for the purpose of using a well-known and reliable material to achieve a desired result.

Regarding claim 11, Matsufuji teaches the invention as claimed but lacks reference to the refractive index of the high refractivity layer within the claimed range. Sopko teaches the use of a high refractivity layer having a refractive index between 1.70 and 1.75 (col. 10 lines 6-9). It would have been obvious to a person of ordinary skill in the art at the time the invention was

made to have the high refractivity layer with a refractive index of 1.70-1.75 for the purpose of minimizing the amount of light reflected at the interfaces of the high refractivity layer.

Regarding claims 12 and 13, Matsufuji teaches wherein the use of metal oxide particles dispersed in a resin, with the particles comprising 5-50 percent by volume (col. 5 lines 7-15). One of ordinary skill in the art would recognize that by selecting an appropriate combination of resin (col. 3 lines 31-38) and metal oxide (col. 5 lines 35-39) from the materials listed in Matsufuji one could achieve the claimed weight distribution between the resin and the metal oxide particles in any of the film layers.

Regarding claims 14 and 15, Matsufuji teaches wherein the antifouling coating layer has a thickness of 3-8 nm (col. 11 lines 45-46).

Regarding claim 16, Matsufuji teaches wherein the substrate film is polyethylene terphtalate film (col. 3 lines 30-40).

Regarding claim 17, Matsufuji teaches wherein the ionizing radiation is ultraviolet light (col. 3 line 60).

Regarding claim 19, Matsufuji teaches the invention as claimed but lacks reference to the use of tin oxide doped with antimony. Sopko teaches the use of tin oxide doped with antimony in the high refractivity layer (col. 2 lines 20-25). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have a high refractivity layer of antimony doped tin oxide as taught by Sopko in the Matsufuji invention for the purpose of providing better antistatic properties in the Matsufuji film stack.

Claims 2-3, 9-10, 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsufuji in view of Sopko as applied to claim 1 above, and further in view of Okamura (US 6,104,530).

Regarding claim 2, Matsufuji in combination with Sopko teaches the invention as claimed but lacks reference to the hard coat having antiglare properties. Okamura teaches the use of a hard coat having antiglare properties (col. 22lines 56-57). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to equip the Matsufuji hard coat with the antiglare properties taught by Okamura for the purpose of reducing the amount of light reflection in the film stack.

Regarding claim 3, Matsufuji in combination with Sopko teaches the invention as claimed but lacks reference to the use of indium tin oxide at one of the high refractivity layers. Okamura teaches the use of indium tin oxide as a high refractivity layer in a film stack (col. 31 lines 49-50). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have one of the high refractivity layers in Matsufuji in combination with Sopko comprise indium tin oxide as taught by Okamura for the purpose of increasing the electromagnetic shielding of the film stack.

Regarding claims 9 and 10, Matsufuji teaches the invention as claimed including wherein the thickness of the hard coat layer is 5-10 microns (col. 5 lines 18-19), but lacks reference to the claimed refractive index of the layer. Okamura teaches the use of a hard coat layer with a refractive index between 1.49 and 1.55 (col. 21 lines 13-17). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the hard coat of

Matsufuji have the refractive index as taught by Okamura for the purpose of reducing reflections at the interfaces of the hard coat layer.

Regarding claim 18, Matsufuji teaches wherein the substrate film is polyethylene terphtalate film (col. 3 lines 30-40).

Regarding claim 20, Matsufuji teaches a film for optical applications comprising a hard coat (2), which comprises a resin cured by ionizing radiation (col. 4 lines 49-51) and has a thickness in a range of 2-20 microns (col. 5 lines 18-19). Matsufuji further teaches a low refractivity layer (4) which comprises a siloxane-based polymer (col. 7 lines 53-55) and has a refractive index in a range of 1.37-1.47 (col. 7 lines 41-42) and a thickness in a range of 60-180 nanometers (col. 7 lines 60-63). Matsufuji further teaches the application of the films on a substrate (1) with the hard coat (2) being adjacent the substrate and the low refractive index layer (4) being furthest from the substrate (Fig. 1). Matsufuji further teaches the inclusion of a high refractivity layer (3). Matsufuji teaches wherein the substrate film is polyethylene terphtalate film (col. 3 lines 30-40). Matsufuji lacks reference to multiple high refractivity layers and the refractive index of the high refractivity layers. Sopko teaches the use of two adjacent high refractivity layers (49 and 51). Sopko teaches the layer closest to the substrate (49) has a refractive index between 1.7 and 1.95 (col. 10 lines 6-9) and a thickness between 30 and 120 nanometers (Table 4 column 3 (measurements given in Angstroms 1 nm = 10 Angstroms)). Sopko further teaches the other high refractivity layer having a refractive index between 1.6 and 1.7 (col. 10 lines 3-5) and a thickness between 5 and 70 nanometers (Table 4 column 1). Sopko teaches the use of a high refractivity layer having a refractive index between 1.70 and 1.75 (col. 10 lines 6-9). Matsufuji further lacks reference to the claimed refractive index of the hard coat layer. Okamura teaches

the use of a hard coat layer with a refractive index between 1.49 and 1.55 (col. 21 lines 13-17). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the single high refractivity layer of Matsufuji be multiple high refractivity layers as taught by Sopko for the purpose of reducing the amount of incident light reflected by the film by slowly changing the refractive index through the film. The application of the high refractivity layers using the same technique as the hard coat disclosed in Matsufuji would also have been within the ability of one ordinary skilled in the art and one would have been motivated to do so for the purpose of minimizing production costs by limiting the number of means used for depositing layers on a substrate. It would further have been obvious to a person of ordinary skill in the art at the time the invention was made to have the hard coat of Matsufuji have the refractive index as taught by Okamura for the purpose of reducing reflections at the interfaces of the hard coat layer.

Response to Arguments

Applicant's arguments filed August 27, 2003 have been fully considered but they are not persuasive.

On page 10 of Amendment A, applicant argues that Matsufuji lacks the binder resin in the conductive layer. The examiner disagrees, Matsufuji teaches the use of a solvent, which is understood to be the same thing as a binder, in the conductive layer (col. 5 line 64-col. 6 line 4). Further Matsufuji teaches the particles dispersed in layer 3 (col. 10 lines 42-63) therefore some type of binder must be present.

On page 11 of Amendment A, applicant argues Matsufuji lacks a "high refractivity layer" and a "low refractivity layer." The refractive index of the "low refractivity layer" is within the claimed range used to define the low refractivity layer and the high refractivity layer as disclosed in Matsufuji may contain any number of the metal oxides discloses in Matsufuji some of which would prove a high index of refraction.

On page 12 of Amendment A, applicant argues that Matsufuji does not intend layer 3 to be a high refractivity layer. Several of the embodiments of Matsufuji may have layer 3 functioning as a layer with a high refractive index, therefore the claim language reads on Matsufuji.

On page 13 of Amendment A, applicant argues that Sopko lacks a hard coat layer. The hard coat layer is taught by Matsufuji and therefore is not necessary in the Sopko reference.

On page 13 of Amendment A, applicant argues that Sopko lacks deposition of layers with wet process cured by ionizing radiation. The use of the deposition process is taught by Matsufuji and therefore is not necessary in the Sopko reference.

On page 14 of Amendment A, applicant argues that Sopko lacks good interlayer adhesion between the second high refractivity layer and the low refractivity layer. This limitation is not present in the claim language and therefore is not considered in the examination process.

On page 19 of Amendment A, applicant argues that Okaumra does not have a hard coat between the substrate and the first high refractivity layer. This limitation is taught by Matsufuji and therefore is not necessary in the Okamura reference.

On page 19 of Amendment A, applicant argues that Okamura lacks resin cured by ionizing radiation. The use of the deposition process is taught by Matsufuji and therefore is not necessary in the Okamura reference.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua L Pritchett whose telephone number is 703-305-7917. The examiner can normally be reached on Monday - Friday 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A Dunn can be reached on 703-305-0024. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JLP

DREW DUNN
SUPERVISORY PATENT EXAMINER